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ABSTRACT

To assist the Federal Trade Commission (FTC) in policy making decisions concerning sugared food advertisements on television, a study was conducted to assess the effects on children of counter advertisements and disclaimers as a means of lessening the undesirable impact of sugared food ads. Approximately 1,200 children, aged 5 to 10 years, indicated their food preferences on a questionnaire consisting of binary choices between a sugared and less sugared food. Three days later, subjects viewed a videotape of a cartoon, interrupted by four advertisements--pairs of sugared food advertisements (with or without disclaimers added), pairs of filler advertisements, or pairs of counter advertisements. The filler advertisements were for nonfood items, the disclaimers applied specifically to the sugared item advertised, and the counter advertisements were informational and motivational, suggesting that other foods are more nutritious. The subjects then repeated the questionnaire. The results indicated that children's food choices were significantly influenced by the advertisements they viewed. In the posttest, children who viewed only sugared food advertisements made less healthful food choices, while children who viewed counter advertisements made the most healthful food choices. Those who saw the sugared food ads with disclaimers made intermediate choices. (HTH)

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COUNTERING CHILDREN'S SUGARED FOOD COMMERCIALS: DO REBUTTALS HELP?

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COUNTERING CHILDREN'S SUGARED FOOD COMMERCIALS: DO REBUTTALS HELP?

ABSTRACT

Saturday mornings, when children constitute a majority of the TV audience, more than half of the commercials are devoted to sugared foods. To assist the FTC in policy-making decisions concerning sugared-food advertisements, the impact on children of counter-advertisements and disclaimers as a means of lessening the undersirable impacts, was assessed.

A sample of roughly 1200 children, aged 5-10, indicated their food preferences on a questionnaire consisting of binary choices between a sugared and less sugared food. Three days later, they were subjected to one of four video treatments and then given the same survey.

Children's food choices were significantly influenced by the advertisements they viewed. In the post-test, children who viewed only sugared-food advertisements made less healthful food choices, while children who viewed counter-advertisements made the most healthful food choices. Those who saw the sugared food ads with disclaimers made intermediate choices.

The average American child aged 2-11 is exposed to more than 20,000 television commericals a year. On Saturday mornings, when children constitute a majority of the TV audience, more than half of the commercials are devoted to sugared foods -- candies, snack foods, and sweetened cereals and beverages (1, p.21). For several decades, parents have worried about the likely effects on their children of this repeated encouragement to consume sugar. For several decades, also, evidence has mounted linking too much sugar with tooth decay, obesity, and other health hazards (8,9,10). Citing this evidence, Action for Children's Television and the Center for Science in the Public Interest petitioned the Federal Trade Commission (FTC) in 1977 to regulate sugared food commercials aimed at children (2).

The resulting 1978 staff report of the FTC's Bureau of Consumer Protection proposed various remedies, some more extreme than the petitioning groups had suggested, including an outright ban on all TV commercials directed at children too young to distinguish advertising from programming. A more moderate proposal in the staff report was to require that ads for sugared foods "be balanced by nutritional and/or health disclosures funded by advertisers" (1,pp.345-46). The Proposed Trade Regulation Rulemaking on children's advertising was given the number 215-60, and the public was invited to submit

evidence or argument on the merits.[1]

The purpose of the study reported here was to assist the FTC in policy-making decisions concerning sugared-food advertisements, by assessing the impact on children of four types or combinations of television advertisements:

(a) advertisements for highly sugared products directed to children;

(b) nutritional messages opposing overconsumption of sugar, also directed to children;[2]

(c) combinations of (a) and (b) in the same viewing block; and

(d) the advertisements in (a) with a short voice-over-slide nutritional message appended.[3]

Since the proposed requirement of nutritional disclosures was a relatively novel remedy, the researchers wanted to help guide FTC policy-making by providing evidence bearing on the utility of that remedy. Significant differences between (a) and the other three treatments would suggest that nutritional disclosures could ameliorate the problem; differences among (b), (c),and (d) would indicate the the most fruitful structure for the disclosures. On the other hand,

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1 Under the Magnuson-Moss Act, reimbursement was available for participating citizens groups. The Media Access Project, a non-profit law firm devoted to assuring full and fair media attention to important issues, commissioned the research reported here as part of its participation. Dr. Mary Alice White of Columbia University Teacher's College was also an investigator on the study. Bonnie F. Liebman, Center For Science in the Public Interest, served as nutritional counsel.

2 These will hereafter be referred to as "counter-advertisements," a term not meant to imply responses to specific advertisements for sugared products; they "counter" the sugared food message generally.

3 These will hereafter be referred to as "disclaimers".

the failure to find significant differences would suggest that nutritional disclosures may not constitute an empirically useful compromise between an outright ban and continuation of the status quo ante.

The written comments of the Media Access Project (including this research) were submitted to the FTC in mid-1979. By then the agency was under heavy attack from Congress and elsewhere for what many saw as a tendency to overregulate; the children's advertising inquiry was one of several that were often cited as evidence of that tendency. The proposed rulemaking was quietly shelved.

But the exercise was not without results. The networks became more favorably disposed toward nutritional public service announcements during Saturday morning programming. Cable television emerged as yet another forum for nutrition education in programming as well as advertisements. The National Association of Broadcasters began requiring cereal commercials to indicate that the product should be eaten as part of a balanced breakfast (6, p.4). Action for Children's Television continued urging broadcasters to regulate sugared food commercials voluntarily. And the utility of counter-advertisements and disclaimers as a means of lessening the undersirable impacts of children's advertising became a policy question of some importance.

The sample for the study consisted of roughly 1200 children aged 5-10 divided among three cities-- Albuquerque, Anchorage, and

Helena.[4] The children were all students in public school classes. Each class was randomly assigned to one of the four treatments listed previously.

In all four treatments the children watched a 15-minute videotape of a "Roadrunner" cartoon, interrupted by four advertisements--pairs of sugared foods advertisements (with or without disclaimers added), of filler advertisements, and/or of counter-advertisements. The two sugared food ads used were for Starburst candy and Kool-Aid powdered drink; the two filler ads were for Hush Puppies shoes and Speedburner toys. Each was 30 seconds. Table 1 summarizes the four treatments.

The two counter-advertisements and two disclaimers were produced for the investigators by York Films, Inc., of Washington, D.C. The disclaimers were straight-foward. The Starburst disclaimer, for example, used an adult voice over a still of the product: "Very sweet foods like this one are mostly sugar. Too much sugar is bad for your teeth, your health, bad for you. Be smart! Don't eat so much sweet stuff." Both disclaimers ran roughly ten seconds.

Within budget constraints, the two counter-advertisements were designed to be motivational as well as informational, applying the findings of market research on children (5,7). GROCERY STORE featured a 7-year-old girl allowed by her mother to choose a treat for doing well in school. She is about to pick out a candy bar when a 12-year-old fantasy character, dressed as a "little professor," suggests nuts or

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4 Field research was directed by the Southwest Research and Information Center (Albuquerque), the Alaska Public Interest Research Group (Anchorage), and the Helena Woman's Center.

popcorn or fruit instead. They discuss the advantages of eating less sugar, the girl chooses oranges instead, and her mother kisses her in surprised approval. An adult voice-over introduces the little professor at a blackboard with the tagline, "don't eat so much candy and sweet stuff." In BALL GAME a 12-year-old scores a home run and is then interviewed by an off-camera adult, who asks the secret of his softball success. The boy explains to the incredulous interviewer why he avoids sugared foods, earning the approval of coach and peers. The interviewer provides the tagline, "As Jimmy says, for healthy teeth and bodies, don't eat so much sweet stuff." The counter-ads ran 30 seconds each.

The dependent variable for the study was the children's self-reported food preferences. This variable was measured three days before the treatment, then agai immediately after the treatment, permitting a more sensitive analysis of treatment effects than would be possible with a post-test alone.

The instrument consisted of binary choices between a sugared and a less sugared food. Each choice was illustrated with line drawings as well as words; the children were asked to circle their favorite food for each pair. Six highly sugared generic foods (e.g. candy, cake, soda) and seven nutritionally sounder generics (e.g. popcorn, oranges, spaghetti) were mentioned at least once in the counter-advertisements. Each was paired with every item on the other list, producing 42 comparisons. Another 42 comparisons were produced by pairing each item with a generic that was not mentioned in the counter-ads (marshmallows, popsickles; bread, peanut butter). Three broader comparisons ("fruit"

Table 1

Explanation of Video Treatments

	(a) Sugared food ads alone	(b) Sugared food ads and counter-ads	(c) Counter-ads alone	(d) Sugared food ads and disclaimers
1.	Cartoon	Cartoon	Cartoon	Cartoon
2.	Hush Puppies (filler)	Starburst (test)	Hush Puppies (filler)	Hush Puppies (filler)
	Starburst (test)	Grocery Store (counter-ad)	Grocery Store (counter-ad)	Starburst (test with disclaimer)
3.	Cartoon	Cartoon	Cartoon	Cartoon
4.	Kool-Aid (test)	Kool-Aid (test)	Speedburners (filler)	Speedburners (filler)
	Speedburners (filler)	Ball Game (counter-ad)	Ball Game (counter-ad)	Kool-Aid (test with disclaimer)

and "sweet stuff," for example) brought the total to 87. Finally, 43 pairs were randomly assigned to the pre-test instrument, the other 44 pairs to the post-test instrument. The children were also asked to indicate whether or not they regularly watched Saturday morning television, and completed items on age, sex, and grade.

The results of the paired comparisons for both pre-tests and post-tests were converted into "health choice scorces" (HCS) by multiplying the number of correct (that is, less highly sugared) responses by 100/43 for the pre-test and 100/44 for the post-test. The pre-test index, 1-HCS, thus indicates how frequently the respondent chose the less highly sugared alternative before experiencing the treatment; the post-test index, 2-HCS, indicates the same variable after the treatment. In both cases, zero represents consistent selection of the more highly sugared choice, while one hundred represents consistent selection of the more nutrtionally sound choice.

A total of 1,179 children completed the pre-test, experienced the treatment, and completed the post-test. Because of invalid answer sheets, 71 children were excluded from the analysis, leaving a sample of 1,108. The distribution of the sample across treatment, city, age and sex is reported on Table 2.

A total of 882 children (79.6%) said they regularly watched Saturday morning cartoons; only 79 children (7.1%) said they did not, while 147 children (13.3%) did not answer. Thus, the children in the study, like most children in the country, have substantial prior exposure to children's television commercials. The sample was divided

roughly evenly among the three cities and among the four treatments; it consisted of about equal numbers of boys and girls, and about equal numbers of 5-to-7 and 8-to-10 year olds.

Table 3 shows the descriptive statistics for 1-HCS and 2-HCS. Clearly, the children varied in their responses to the instrument.

Analyses of variance of 1-HCS by city and by treatment were both significant at the .01 level of confidence (F=6.6 for city, F=4.5 for treatment). This means the children in different cities and the children assigned to different treatments already differed nonrandomly in health choice scores before they saw the ads. Analysis of covariance was therefore used to adjust the data statistically to take these initial differences into account.

The pertinent method is analysis of covariance of 2-HCS by treatment, controlling for both city and 1-HCS. This test measures the effect of the different advertisements on children's food preferences, when the confounding effects of city and of pre-test food preferences are statistically eliminated. Both covariates were significant at $p < .01$ (F= 16.6 for city, F= 808.7 for 1-HCS); this means that both city and 1-HCS affected 2-HCS scores. The main effect was also significant at $p < .01$ (F= 24.0), meaning that when the influence on 2-HCS of city and of 1-HCS was statistically controlled, the four treatments had a significant influence on 2-HCS scores. Finally, the explained variance for the analysis was significant at $p < .01$ (F=186.8), meaning that the relationship between treatment and 2-HCS was not due to other variables. In short, children in the study made different food choices depending on which ads they had just seen, and those

Table 2

Sample Characteristics

	N	%
By treatment:		
(a) Sugared food ads	247	22.3
(b) Sugared food & counter-ads	310	28.0
(c) Counter-ads	291	26.3
(d) Sugared food & Disclaimers	260	23.5
By city:		
Albuquerque	358	32.3
Anchorage	367	33.1
Helena	383	34.6
By age:		
5	137	12.4
6	197	17.8
7	176	15.9
8	224	20.2
9	217	19.6
10	140	12.6
Uncoded	17	1.6
By sex:		
Female	554	50.0
Male	553	49.9
Uncoded	1	0.1

Table 3

Descriptive Statistics of Dependent Variables

Variable	Mean	Stnd. Dev.	Min.	Max.
1-HCS	52.1	21.8	2	100
2-HCS	57.5	24.2	2	100

differences cannot be attributed to the effects of city, of pre-test scores, or of any other variable.

Table 4 shows the direction of the differences. Those children who saw only the sugared food advertisements made less healthful food choices on the post-test than the other children. Those children who saw the counter-advertisements (whether accompanied by the sugared food advertisements or not) made the most healthful food choices. Those children who saw the sugared food advertisements with disclaimers made intermediate choices.

All the differences reported in Table 4 are modest in size. The adjusted 2-HCS means for the two most extreme groups differed by 11.64, equivalent to 6.13 items on the 44-item post-test instrument. Furthermore, the differences were presumably enlarged by two factors--the analysis of covariance procedure used to control statistically for city and pre-test effects, and the compliance pressure of the research design. The latter is probably more important. Children were asked to state their food preferences; three days later their attention was directed to several food advertisements, and then they were again asked about their food preferences. It is arguable that some children may have defined the post-test task as altering their expressed food preferences in the direction of the advertisements they had seen. To the extent that this is so, the obtained differences may demonstrate only that the children understood the ads they saw and were willing to alter their questionnaire responses to match.

Table 4

Adjusted 2-HCS Scores by Treatment

Treatment	N	Adjusted Mean 2-HCS	Raw Score (# correct)
(a) Sugared food ads	246	49.76	21.89
(b) Sugared food & counter-ads	308	60.93	26.81
(c) Counter-ads	288	61.40	27.02
(d) Sugared food & disclaimers	258	56.69	24.94

On the other hand, it is equally arguable that completing the pre-test instrument may have initiated a strain toward consistency for some children, deterring them from changing their responses after seeing the advertisements and thus diminishing the obtained differences in 2-HCS means. Furthermore, the directions on the instrument stressed heavily the individuality of choice. "What snacks and treats are YOUR favorites? Which ones do you really like the best? Which ones taste yummiest to YOU? Circle the one in each box that is YOUR favorite. Don't pay attention to your neighbors' choices. We want to know just YOUR favorite treats." Given this stress in the instructions, the compliance effect seems more likely to yield a consistent bias in the direction of more healthful food choices than a discrimination in favor of the choices urged in the advertisements.

Furthermore, it is crucial to bear in mind that each child saw at most four 30-second advertisements relevant to food preference. Such a marginal influence coming on top of years of exposure to food advertising could hardly be expected to produce a huge, instantaneous change in values. In this context the obtained differences seem surprisingly large. Consider a speculative extrapolation of the data for counter-advertisements (4). If we assume all changes would be in the direction of less sugared choices, and if we select 99% as the confidence interval for the 2-HCS scores, then raising the average post-test raw score to 43 (out of 44) would require 35 exposures to the two counter-ads---a level of repetitive exposure routinely achieved by

commercial campaigns. This statistical projection does not of course predict actual changes in eating behavior, but it does indicate that the obtained differences are not trivial.

Note that the results for the sugared food treatment (a) differed more markedly from the others than the others did from each other. We may speculate that exposure to the sugared food advertisements restimulated the incremental effects of years of exposure to sugared food advertising. It is a truism of mass communication that reinforcement of existing values requires far less media exposure than inculcation of new values. In contrast to the sugared food advertisements, the other three treatments incorporated ads that many children probably found unusual, even perplexing. Greater exposure to the counter-ads and disclaimers might yield greater differences between their effects; the differences reported in Table 4, indicating a greater impact for counter-advertisements than for disclaimers, are too small to rely upon.

It is of course problematic to generalize from these findings concerning hypothetical food choices on a questionnaire to the real world of actual food choices. Real behavior is less vulnerable to compliance effects, and generally less changeable, than questionnaire responses. To the extent that children's preference for sugar is physiologically addictive, as some scholars have speculated, even a fairly intensive counter-advertising campaign might produce more change in verbal choices than in food consumption. But to the extent that children's food choices are influenced by cultural and subcultural norms-- and are

thus changeable if the norms are changed--there is good theoretical reason for speculating that motivationally effective nutritional disclosures could appreciably improve children's eating.

For the typical child, the choice between a highly sugared and a less highly sugared food may be conceptualized as an approach-approach conflict. On the one hand, the child already knows that too much sugar is harmful, and which foods contain too much sugar. In order to be healthy and to please his or her parents, the child wants to choose healthful foods. On the other hand, the child is attracted to excessively sugared foods, and is much influenced by peer group norms supporting excess sugar consumption.

In this postulated approach-approach conflict, current television advertising supports the sugared food alternative (3). Television support for the more healthful alternative might generate substantial change in children's eating behavior.

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